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ROCKS and MINERALS

A Magazine for Mineralogists,
Geologists and Collectors

Official Journal of the Rocks and Minerals Association

OCTOBER, 1942

Vol. 17, No. 10 **25c** *Whole No. 135*

THE ROCKS AND MINERALS ASSOCIATION

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Organized in 1928 for the increase and dissemination of mineralogic knowledge

To stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

Ever since its foundation in 1928, the Rocks and Minerals Association has done much to promote the interest in mineralogy. It has sponsored outings, expeditions, formations of mineralogical clubs and the printing of many articles that have been a distinct contribution to mineralogy.

Those of our readers who are members of the Association can rightly feel that they too were sponsors of these many achievements that have helped to give mineralogy a national recognition. Among your friends there must be many who would like to have a part in the Association's work—to share with you the personal satisfaction, the pleasure, and the benefits of membership. Will you give your friends this opportunity to join the Association by nominating them for membership?

Each new member helps to extend the Association's activities—helps to make your magazine larger, better, and more interesting, and above all assists in the dissemination of mineralogical knowledge.

Some advantages of memberships: All members in good standing receive:

(1) **Rocks and Minerals**, a monthly magazine. (2) A member's identification card that secures the privileges of many mines, quarries, clubs, societies, museums, libraries. (3) The right to participate in outings and meetings arranged by the Association. (4) the right to display a certificate of membership and to place after their names a designation indicating their membership or to advertise membership on stationery, etc. (5) The distinction and the endorsement which comes from membership in the world's largest mineralogical society.

Mineralogical clubs which subscribe for **Rocks and Minerals** also become affiliated members of the Rocks and Minerals Association and enjoy all the advantages which such an affiliation affords.

A number of clubs hold membership in the Association, participate in the annual outings, and co-operate in many ways in furthering the aims and ambitions of the Association.

Affiliation with the world's largest mineralogical society cannot fail to increase membership, enlarge circles of acquaintanceship, and stimulate a keener interest in mineralogy.

A list of affiliated clubs will be found among the back pages of the magazine.

ROCKS and MINERALS

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

October 1942

Contents for October, 1942

CHIPS FROM THE QUARRY 338
MINERAL COLLECTING AS A PART OF A COLLEGE COURSE IN MINERALOGY. *By Richmond E. Myers* 339
SILICEOUS OOLITE NEAR CENTREVILLE, ALA. *By W. L. Pratt, Jr.* 345
WEST VIRGINIA UNIVERSITY TO DEDICATE NEW MINERAL INDUSTRIES BUILDING OCT. 16-17, 1942 346
MINERAL ODDITIES 349
A GARNET OCCURRENCE IN NORTH CAROLINA. *By Rud Pohli* 350
COLLECTORS' KINKS (A kink on breaking semi-opal) 350
GALLIUM FOUND IN VIRGINIA BERYL. *By Kent C. Brannock*.. 351
COLLECTORS' TALE (A bump in the right direction). *By P. Zodac* 351
NEW DISCOVERY OF COVELLITE AT BUTTE, MONT. *By M. H. Gidel* 352
1943 JUBILEE CATALOG 352
MUSEUM MODEL OF THE SOLAR SYSTEM 352
A LIMESTONE QUARRY IN QUARRYVILLE, PENN. *By Peter Zodac* 353
FIELD MUSEUM HAS 23 MEN IN WAR SERVICE 353
CLUBS AFFILIATED WITH THE R. & M. A. 354
WITH OUR DEALERS 355
CLUB AND SOCIETY NOTES:
ROCKY MOUNTAINS FEDERATION CONVENTION 356
PHILADELPHIA SOCIETY TO OBSERVE ITS 50TH ANNIVERSARY.. 356
ROCKS AND MINERALS FREE SAMPLE FUND 356
BIBLIOGRAPHICAL NOTES 357
INDEX TO ADVERTISERS 368

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The official Journal of the Rocks and Minerals Association

Chips from the Quarry

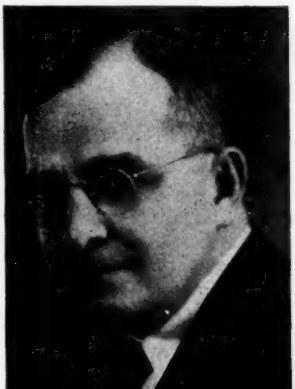
BLACKOUT ON ILLUSTRATIONS

Beginning with this issue of ROCKS AND MINERALS and until further notice, maps, sketches and illustrations in general will be sharply curtailed. This is due to a new Government decree, issued to conserve metal, which restricts the making of electroplates for magazines, newspapers, and other publications.

We can have some electroplates made but in doing so it involves legal intanglements. But worse still we would be forced to junk all our standing electroplates before new ones would be issued to us. Our electroplates cost us about $3,000, to junk them would bring but $10 or $15—a heavy loss to us as the plates can be used many times for various purposes.

We believe we can serve our Government better if we do not have new electroplates made for us from now on until the restrictions have been removed. Though our readers will miss the illustrations, we believe that they are in full accord with our aims and policies and will bear the omission of sketches and pictures as one of the many sacrifices due to the war. We are also certain that our subscribers realize that the cost of everything has gone up—which includes printing, paper, wages, etc.—but the subscription price of ROCKS AND MINERALS is still the same—$2.00 a year.

One of the consoling features to us of this cruel war is that very few subscribers have been lost. Even though many have joined the service, they still retain the magazine which is sent either direct to them or to their homes. As a matter of fact we have received many new subscriptions from men in the service who were interested in minerals, apparently, by some of our old subscribers.



Of course we will continue to feature illustrations in ROCKS AND MINERALS. We will use some of our old electroplates from time to time or borrow others from various sources. Perhaps some of our readers may have one or two which they will want to lend us.

Western Articles Wanted

We have received a number of requests for more articles on western localities. Will some of our readers oblige by submitting articles on any of the following states: Arizona, California, Colorado, Idaho, Nevada, Oregon, Utah, Washington.

All articles have to be sent gratis as ROCKS AND MINERALS is in no position to pay for them.

Peter Zodac

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The Official Journal of the ROCKS and MINERALS ASSOCIATION

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MINERAL COLLECTING AS A PART OF A COLLEGE COURSE IN MINERALOGY

BY RICHMOND E. MYERS

Dept. of Geology Muhlenberg College, Allentown, Penn.

In recent years there has been a tendency in the teaching of mineralogy to disregard completely the elementary idea of collecting minerals in the field under the supervision of the instructor in charge. To my mind this is deplorable. Many reasons, some of which are of course valid, are advanced to excuse this oversight. Possibly the best is that there are no convenient collecting grounds to which classes may go. Naturally there are institutions so situated, that even if the teachers wanted to take their students in the field, there would be that unfortunate condition of having no good mineral localities close at hand, but in many schools and colleges that are convenient to excellent places for mineral collecting, nothing is done about it. In fact the policy too often seems to be one of ignoring what nature has kindly placed on their doorsteps. Educators seem to feel that there is so much to be learned in the lecture room and indoor laboratory, that there is no time to augment and consolidate this knowledge by going out of doors and learning by seeing. Collecting is relegated to the so-called "amateur", and is not for the student, at least not as a part of his or her formal education. What teacher would attempt to teach chemistry or physics without adequate laboratory hours? True, a great deal of time in mineralogy is spent working over specimens on the laboratory table, but it is in the field where one can best apply the techniques and knowledge learned indoors. How much better to find a mineral in the quarry wall or waste dumps than in the drawer of the laboratory storage cabinet. It is in the mine or quarry that one can study, not only the minerals themselves, but also their mode of occurrence, associations, uses, and many other things that indoors are hardly mentioned if at all.

With this idea in mind we at Muhlenberg College have arranged our course in mineralogy to include a minimum of six field trips, all required on the part of the students, from which, augmented by additions from elsewhere, each person taking the course must build up a collection of properly labelled minerals, and be able to recognize at sight specimens from each of the localities visited.

The following descriptions of mineral localities consist of the data sheets furnished to each student prior to the field trips. They are submitted to the readers of ROCKS AND MINERALS MAGAZINE in the hope that they may derive good therefrom. They will also furnish some idea as to what type of localities are available to eastern Pennsylvania schools doing similar work.

THE FRENCH CREEK AND JONES MINES

About the middle of the last century magnetite iron ore was mined extensively at St. Peters in Chester County, and several places west of the point into Berks County. Two of the mining localities

are described herewith. Both are well known for mineral collecting. The ore is associated with Triassic diabase (trap rock) and the deposits undoubtedly were the result of hydrothermal action at the time of the intrusion, which was accompanied or followed by an invasion of hot vapors and gaseous solutions which dissolved the country rock (limestone) and precipitated the magnetite and associated minerals in the openings thus obtained.

FRENCH CREEK MINES

Located on the hill east of St. Peters Station in French Creek valley. First opened about 1850 and worked off and on until 1928. Between 1914 and 1928, over 870,000 tons of ore were mined. The ore is probably exhausted today.

The principal mineral is magnetite, platy, pseudomorphic in part after calcite, and in part after foliated hematite, this being characteristic of the Cornwall Type of ore body.

Associated primary minerals: octahedral pyrite, bornite, chalcopyrite, pyrrhotite, sphalerite, and their oxidized metamorphic products, hematite, malachite, chrysocolla, and erythrite.

The gangue minerals include: apophyllite, calcite, garnet, byssolite, actinolite, tourmaline, and graphite. These are all typical contact metamorphic minerals.

JONES MINE

Located in Caernarvon Township, Berks Co., and situated on the contact of the Triassic diabase with the Cambrian limestone and calcareous shale, overlapped on the north by the Stockton formation. The limestone was not only intruded by the great mass of diabase, but injected by minor dikes. At present only the waste dumps and water filled pits may be seen.

As at St. Peters the chief mineral is magnetite.

Associated with it are pyrite, chalcopyrite, chalcocite, bornite, cuprite, melaconite, and copper.

Associated hydrothermal metamorphic minerals are calcite, aragonite, malachite, chrysocolla, cerussite, and gypsum.

Contact minerals in the limestone are actinolite, talc, serpentine, byssolite, and graphite.

Neither field evidence nor available data indicate that this mine has been in operation for many years.

THE CHESTER-MONTGOMERY COUNTY LEAD, ZINC, AND COPPER MINES

All these mines are situated near Phoenixville. Most of them are south of the borough along Pickering Creek, but several are located a few miles east of the town, along Mine Run in Montgomery County. In each mine the veins of lead, zinc, and copper ores strike northeast and dip southeast, penetrating both Pre-Cambrian and Triassic rocks. The late Triassic dikes that cross this area indicate the presence of some deep seated source of igneous activity. Both dikes and veins follow joint or fault fissures and intersect the dip and strike of the sedimentary rocks. The ores are, therefore, safely admitted to be hydrothermal in origin, being formed by deposition from the heated solutions given off from this deep seated igneous mass. The lodes cut the Triassic shales, and are thus Triassic or post-Triassic in age. They have all undergone secondary changes thru the action of downward percolating water. The gossan and cavernous quartz as well as some of the secondary minerals show that extensive alteration took place. The abundance of pyromorphite is difficult to account for as the source of the phosphoric acid is hard to explain. Perhaps some phosphate bed in an overlying Triassic strata which later was removed by erosion may have supplied it, but this is only a suggestion.

In all the mines the dominant vein material is quartz, and associated with it are many metallic and non-metallic minerals.

The lead minerals include: *galena,* anglesite, cerussite, pyromorphite, and mimetite.

The zinc minerals include: *sphalerite* and calamine.

The copper minerals include: malachite, cuprite, azurite, *chalcopyrite, chalcocite,* and native copper.

Associated minerals are: wad, sulfur, silver, hematite, limonite, *pyrite*, (siderite), (calcite), (dolomite), (ankerite), (fluorite), and (barite).

These minerals may be found on the waste dumps. The primary ore minerals are in italics and the gangue minerals are in brackets. These are of hydrothermal origin. The remaining associated minerals are all of secondary origin, being derived from the primary ores.

These mines were at their height of operation prior to the Civil War. As recently as 1917 the Wheatley Mine was reopened, and up to August of 1919 was worked because of war time demand. In all about 500 tons of ore were taken out in those years, assaying from $15 to $60 a ton, with an average daily hoist of 20 tons. Apparently this was not profitable for the operation was eventually given up.

THE KIBBLEHOUSE QUARRY

In the southern part of Marlborough Township, Montgomery County, about 1/3 mile east of Perkiomenville, along the banks of the Unami Creek, is a quarry in the metamorphosed shales of the Brunswick Formation, that in recent years has become famous for its zeolites and other minerals. Worked for road metal the quarry has been in operation for quite a few years, and is well known to mineral collectors of the Philadelphia area.

The principal minerals found here include:

CALCITE. Colorless, white to yellow varieties. The yellow occurs in the natrolite and stilbite, and some specimens show excellent rhombohedral cleavage. Rhombohedral and hexagonal crystals have both been collected here. They seldom attain any great size, and frequently occur as drusty masses.

**CHABAZITE.* Colorless, white, and light pink. Crystals common, with rhombohedral forms, at times resembling cubes.

CHALCOPYRITE. Small veins and pockets filled with massive material occur in the rock. Often on cleavage planes.

MAGNETITE. Small grains occur in the rock.

MANGANESE OXIDE. Found as dendrites, sometimes very beautiful "pictures" are formed.

**NATROLITE.* White to light red, or pink. Some white radiated tufts of slender acicular crystals. Tiny cubes of pyrite found on some specimens.

PYRITE. Found in thin platy masses, massive, and in crystals. In some cases pyrite has been altered into limonite.

**STILBITE.* Colorless, yellow, to light brown.

PROBABLE ORIGIN OF THE MINERALS AT PERKIOMENVILLE

The Zeolites (marked above with*) are, as a rule, associated with igneous intrusions and considered to be of hydrothermal origin. When country rock (the Brunswick shale) is invaded by an intrusion of magma (diabase or "trap" rock) the rock is heated and upon cooling a lot of open spaces are formed by shrinking. Such open spaces give access to hot water escaping from the cooling magma, and this water serves as a medium in which chemical actions take place. Elements from the magma are carried in solution into the country rock, which is further dissolved affording wider channels for circulation. Such activities also go on within the solidifying rock mass. These waters contact the feldspar minerals and at times alter them into hydrous silicates of Al, with Na and Ca as the important bases. These hydrous silicates are the zeolites. At this locality the instrusive lies a short distance north of the quarry. On the opposite side of the same intrusive (trap ridge) the shale was also metamorphosed into hard rock (note extensive quarry operations at Green Lane) but without the zeolitization.

The other minerals are also of hydrothermal origin.

FRIEDENSVILLE IN SAUCON VALLEY

From 1853 to 1876 Friedensville ranked as the foremost zinc mining region in the United States, producing 2/3 of all the zinc produced in the country.

There are three lodes trending east and west. On the southerly lode there were three mines, the Three Corner Mine, the Correll Mine, and the New Hartman Mine. The Old Hartman Mine is on the middle lode, and the Uberroth Mine (Lehigh Zinc Co.) on the northern lode.

Diamond drilling has been done in recent months by the present owners (N. J. Zinc Co.), but no announcement has been made public as to their findings.

The country rock is limestone of the Beekmantown Formation of the Ordovician Period, proven by the presence of the gastropod Lecanospira (a close coiled snail) as fossil evidence.

The primary minerals are sphalerite (zinc blende), And sulphide of iron. The sphalerite is remarkably close to the theoretical zinc content. It has a nonmetallic adamantine luster and silver gray color. It is fine granular. With calcite, dolomite, and quartz, it fills veins and cavities . Also it replaces the limestone from which it is distinguishable by its higher luster and greater gravity (3.9 to 2.7). The sulphide of iron occurs as pyrite in cubic crystals and again with poorly developed crystal form, probably as marcasite.

The secondary minerals are calamine (hydrous zinc silicate) and smithsonite (zinc carbonate). They occur from the surface to the level of permanent ground water, and in depth along what were channels of out-flowing underground water as crusts and cavity linings. The calamine is berry-like in structure with a radial groupings of very small individual crystals. The smithsonite is similar to the calamine but lacks the appearance of being composed of an aggregation of individual crystals. Greenockite (cadmium sulphide) occurs as a brilliant yellow powder or coating on the limestone. Yellow-brown stains of limonite result from the weathering of the pyrite. Quartz occurs as a replacement of the limestone producing a compact quartzite, as thin veins cutting the limestone, and as crystals lining cavities. A fibrous variety of quartz is found that is known as "petrified horse hairs."

The limestones are highly inclined or vertical. Replacement has taken place along the bedding planes and joint planes and shattered openings. The replacement may vary from a surface thickness to several inches and occasionally across the whole width of a bed. The localization of the ore in lodes is due primarily to shattering, which is the result of folding, but barren areas within the lode may be attributed to either lack of shattering or higher dolomitic content or a combination of these.

The deepest workings are 225 feet. The ore was mostly removed from open pits, but underground mining was resorted to when too great a depth was reached for open cut methods.

The origin of the ore is precipitation from an aqueous solution.

THE GRAPHITE MINES OF THE PICKERING VALLEY

The Graphite deposits of this state are confined to the highly metamorphosed Pre-Cambrian rocks of the southeastern portion of the commonwealth. Altho graphite has been mined in Berks, Bucks, and Lehigh Counties, by far the most important producing region has been the valley of the Pickering Creek in Chester County.

The mineral occurs chiefly in gneisses and schists, altho at places it is disseminated in an ancient metamorphosed limestone. The most common occurrence is in the gneisses. The Pickering Mines were all opened in a rock known as the Pickering Gneiss. It is a metamorphosed Pre-Cambrian sediment, composed chiefly of feldspars, quartz, biotite, hornblende, calcite, and much graphite.

The graphite occurs in three forms: 1. As a disseminated important constituent of the gneiss. 2. In pegmatites, and 3. In small veins. Evenly disseminated graphite constitutes the main source of the commercial supply.

ORIGIN

The disseminated graphite is believed to be of organic origin. Evidence indicates that it has been derived from carbonaceous plant or animal remains. The Pickering Gneiss was probably the product of a sediment formed in shallow seas. This is indicated by the lithological character of the rock. In such a sea one would find favorable environment for the accumulation of carbonaceous remains of organisms that would be inclosed in the forming strata which were later squeezed and folded, and the resulting pressure and heat is thought to have metamorphosed the carbon into graphite.

THE OUTLOOK FOR FUTURE MINING

Graphite mining in this area has had a precarious past. It has been cursed with promoters schemes and instability of operating companies. Cleaning and concentration of the flakes has proven too costly for profits. There is no scarcity of the rock carrying enough quantities of good graphite to mine it for a long time, but artificial graphite is proving just as good and cheaper. Today there is talk of reopening due to loss of foreign material on the American market, but renewal of imports when the war is over would again spell the end of any activity in the valley that might begin under the national emergency program.

THE VERA CRUZ (LEHIGH CO.) REGION

In a small area of approximately four square miles, located about eight miles south of Allentown in the Reading Hills, there are several interesting mineral localities which, altho not famous for their quantity or variety of specimens, are well known for a few interesting and several uncommon minerals of excellent quality. These minerals are described herewith:

MOLYBDENITE. At two localities near Vera Cruz Station, very nice specimens of this mineral can be found. It occurs in the basic gneiss of the Reading Hills, and is associated with magnetite deposits. One locality is an abandoned quarry along the Perkiomen Railroad about a mile east of Vera Cruz, the other the dumps of an old magnetite mine on the summit of Mine Ridge, just to the east of the road between Vera Cruz and Emaus. Here the mineral occurs in considerable quantity, and is readily found. Considerable masses of excellent Hornblende are found in the same dump. The molybdenite occurs in flakes ranging in size from a few m.m. to several inches. It has been mistaken by local residents for graphite.

MAGNETITE. West from the molybdenite locality for about a mile one encounters a profusion of old iron mines in the woods on the top and southern slope of the ridge. Some are tunnels, others open pits, many merely prospect holes. These were worked in the past for magnetite, specimens of which, both massive and crystalline, are to be found on the dumps. These mines have produced about 300,000 tons of ore in the past and much is left unmined. Work was done here as recently as 1917. At the close of the last century Thos. Edison had a detailed magnetic survey made of this ridge, with the idea of utilizing the ore at his plant in New Jersey, but the project did not prove practical and was given up.

The ore occurs in several veins or tabular bodies and was present in the lowest depths that mining was done. The chief gangue is quartz and a great deal of plagioclase with some orthoclase is present. Pyrite is common, and so is chlorite as an alteration product of hornblende. Biotite is also present. The gneisses in which the ore occurs are believed to be of igneous origin, and the magnetite is well diffused thru them. It is quite likely that the deposits are the result of differentiation and injection, for much intrusive material is found in the region.

An excellent collecting locality is the dumps of an old mine located on the property of Mr. Percy Ruhe. However permission must be secured at the house for collecting here.

ZIRCON. In this same region zircon crystals have been found loose in the soil of the ridge. Altho not common one may be lucky enough to find nice specimens.

Some of good quality found at the Ruhe locality are in the college collection.

GRAPHITE. Flakes of this mineral have been noted in the gneisses of this area. It occurs in large enough quantities to have attracted commercial interest at several localities. On the road between Vera Cruz Station and Limeport is the old Backenstoe Mine, which was opened for gold, later mined for pyrite, and finally for graphite. It never was a paying proposition. Many people are said to have lost money in the venture. Graphite is present, and pyrite has been observed there, but as for the gold, that is problematical. Just to the east of the molybdenite locality on the ridge, there are several mines, which look more like prospect pits, from which graphite is said to have been taken.

JASPER. A short distance from the magnetite mines, just southwest of Leibert's Gap, are the old Indian Jasper pits which were worked by the Redmen for arrowheads. These have furnished valuable relics of Indian culture, and much jasper. The jasper is still abundant, as only a casual visit will prove. Nearby iron mines (limonite) also furnish good collecting places for this attractive mineral which occurs in a variety of colors, chiefly red and yellow. The jasper is thought to be a replacement product either in the quartzite or in limestone, depending on whether it occurs in the Hardyston, as at the Indian pits, or in limestone, as in some of the iron mines. A great deal of it is broken and carvernous, and the walls of these openings are often lined with small drusy quartz crystals.

WILLIAMS QUARRY, EASTON

This place is the most important present-day mineral collecting locality in Pennsylvania, and one of the leading localities in the eastern United States. There are three reasons for this, the first being the large number of minerals found there, the second the fact that a few very rare minerals occur in this place, and the third the fact that that it is an active quarry and not a reminder of past production.

Impure dolomitic limestones of the Franklin formation were intruded here by pegmatites. Much of the original dolomite was metamorphosed into serpentine and talc, which deposits represent the commercial side of the picture. These materials are pulverized and used as a mineral filler.

The most interesting and unusual minerals occurring here are those of the uranium and thorium series, some of which are known to occur in no other place in this country.

The most common minerals occurring here are talc and serpentine, and the immediately associated tremolite. The talc ranges from white to light green in color, and is abundant, possessing a distinct foliated structure in places but more often occurring in massive form. There are several varieties of the serpentine: precious or noble (gem quality) with a rich oily green color, the massive or common ranging in color from various shades of green to white, and the variety "bowenite" of fine granular texture The tremolite forms the bulk of the "asbestos" and large masses of rock are composed chiefly of this mineral, usually occurring in white lath-shaped or fibrous crystals.

A PARTIAL LIST OF THE MINERALS OCCURRING AT THIS PLACE.
(All Sub-species or Varieties Not Listed)

actinolite
anthophyllite
apatite
aragonite
asbestos
augite
autunite
azurite
barite
biotite
brucite
calcite
carnotite
celestite
chalcocite
chalcopyrite
chlorite
chrysocolla
cuprite
diopside
dolomite
feldspars
fluorite
galena
graphite
gypsum
hematite
hydromagnesite
ilmenite
limonite
magnesite
malachite
marcasite
molybdenite
muscovite
nephrite
phlogopite
pyrite
pyrolusite
quartz
serpentine
sphalerite
talc
titanite
thorium-gummite
topaz
tourmaline
tremolite
uralite
uranophane
vesuvianite
wernerite
wulfenite
zaratite
zircon

SILICEOUS OOLITE NEAR CENTREVILLE, ALA.

BY W. L. PRATT, JR.

Centreville, Ala.

About 5 miles north of Centreville, Bibb Co., Ala., on Alabama State Highway 5, is a chert pit whose product is used for road surfacing in the county. Great quantities of chert (snow-white in color) have been removed in the past but at present small amounts only, if any, is being taken out. The material option was originally secured by Bibb County but has reverted to its owner, Mrs. G. H. Blake. Many individuals, however, frequently go into the pit for material and without objection on the part of the said owner who has never asked that anyone gain her permission to enter the premises. The whole pit is so nearly snow-white in appearance (due to the color of the chert) that from a distance of about 100 yards it reminds one of a giant snow bank.

The pit is about 400 feet long, 100 feet wide, and its depth at the south wall (the only wall of the pit) is about 65 feet. It is a side-hill cut of a steep hill, immediately adjoining the Right of Way of Route 5 on the west.

Pieces of siliceous oolite have been found by the writer in the loose soil and among small broken-up pieces of chert, the pieces varying in color from gray to brown and range in size from very small up to several pounds in weight. Siliceous oolite has also been observed as forming veins in some of the very large masses of loose rock that had not been removed from the pit; also as veins in the solid ledge of chert at the lower levels of the pit. The writer believes that most of the specimens found by him in the soil may have been thrown out during the quarrying of the chert. There appears to be different degrees of silicification in many of the oolite specimens found as some are completely silicified while others appear chalky and seem to be but barely cemented together. Much of the material, however, occurs in good compact masses that should take an excellent polish.

Aside from nice specimens of chert and siliceous oolite, and some unusual clusters of quartz crystals, (great portion are completely colorless but a few have a smoky or blackish hue) no other minerals are known to the writer as occurring in the pit. Numerous shells and concretions also occur. However, since the writer is only a beginner in collecting, he believes that an experienced collector could find others that would be of interest. Anyone passing through this vicinity would find that a visit to the pit would be well worth the time. It would also be a great pleasure on the writer's part to have the good fortune of accompanying a collector to the pit should such a collector wish to acquire some good specimens of siliceous oolite. Centreville is a small village in about the central part of the state.

Siliceous oolite is a rock consisting of rounded chalcedony grains deposited around tiny grains of quartz. These rounded grains resemble the roe of a fish; if the grains are large enough their concentric structure can be seen with the naked eye.

A Suggestion for Collectors

A number of our subscribers have started an American mineral collection which consists of one mineral from each state and each mineral different. As yet we have not heard of a single complete collection—a number of them lacking four or five specimens. Five of the 48 states are proving stumbling blocks as it is rather difficult to obtain specimens from them. These states are Delaware, Louisiana, Mississippi, Nebraska, and North Dakota.

In an early issue of ROCKS AND MINERALS we may describe such a collection —a complete one—made by the editor of this magazine.

WEST VIRGINIA UNIVERSITY TO DEDICATE NEW MINERAL INDUSTRIES BUILDING OCTOBER 16-17, 1942

Morgantown, W. Va., Sept. 1st—As a fitting tribute to the opening of the institution's seventy-sixth academic year, West Virginia University on October 16 and 17 will dedicate its new million-dollar Mineral Industries Building, called by competent authorities the finest structure of its nature in the United States.

An appropriate as well as essential addition to the State University's campus in view of West Virginia's vast coal, oil and gas, chemical, and ceramic industries, completion of the building is especially timely because of the vital role the State is playing at the present time in the nation's war effort.

Begun in 1940 after years of careful planning, the building embodies factors which make it the fulfillment of the dreams of the scientist, engineer, teacher, and student. Now fully completed and equipped, it houses the School of Mines, the West Virginia Geological Survey, the Department of Geology, and the Department of Chemical, Metallurgical, and Ceramic Engineering.

Dr. Friend E. Clark, chairman of the University Graduate Council and head of the Department of Chemistry, in his capacity as chairman of the dedication committee, has announced a tentative two-day program which calls for the appearance of speakers of national and State-wide reputation, including Governor M. M. Neely and President Charles E. Lawall of the University.

The dedication, which is expected to attract specialists in the fields involved from throughout the United States, will be held October 16 at 2 p.m. Following registration, the morning of that day will be devoted to an inspection of the building. The evening and all of the next day will be given over to various scientific and industrial groups which have scheduled their annual meetings for this occasion.

Other members of the dedication committee are Dr. Paul H. Price, State geologist and head of the Department of Geology, Prof. W. W. Hodge, head of the Department of Chemical, Metallurgical, and Ceramic Engineering, and Prof. W. A. Staab, of the School of Mines faculty, who has been acting in the absence of the mines director, D. L. McElroy, now in Washington as a technical adviser for the mining branch of the OPM.

AN IMPOSING SIX-STORY STRUCTURE

An imposing six-story structure situated at the gateway to the campus, the building has taken its place upon the Morgantown skyline not only as a valuable addition to the research and instructional facilities of the University but also as a contribution to the architectural beauty of the campus, which is fast growing into one of the most attractive educational layouts in the country. It is fitting also that the Mineral Industries Building is situated on property which for years was the residence of the late Dr. I. C. White, one of the foremost geologists of the world and for a lengthy period State geologist. Dr. White was an early graduate of the University.

Industry in this and other states has been quick to grasp the importance of the building. In fact, the mining, oil and gas, and the fast growing chemical industry interests have lent their support to agitation for its construction for many years.

So large and so thoroughly equipped, including minute details, is the building that it would be impossible here to attempt a complete description. Perhaps the story is most speedily told in the message of a large interpretive mural in the auditorium on the ground floor. Here Artist Robert L. Lepper of Pittsburgh has portrayed the industries of West Virginia. This is a State of great natural resources and its industries are molded accordingly. The artist has caught the theme of it all on his canvas as he crowds it with a panorama of processes, natural resources, finished prod-

ucts, and the equipment and workers as each contributes his share to the transformation process.

MODEL COAL MINE IN BASEMENT

A brief tour of the building takes us first to the basement where is found a complete model coal mine for the study of ventilation. Several hundred feet of airways are provided to simulate conditions encountered in actual mine ventilation. A two-stage axial flow fan with adjustable propellor blades provides an air current of 30,000 cubic feet per minute, and facilities for the detailed study of mine ventilation problems are provided. Model units permit the study of principles and practices of the various phases of this field.

SPACIOUS OFFICES AND WELL EQUIPPED LABORATORIES

Part of this and the ground floors, plus a large two-story laboratory at the south end of the building, are taken up with the School of Mines' administrative offices, laboratories, and lecture rooms. The laboratories, furnished for research for class instruction, are equipped for the various divisions of the mining and oil and gas industries.

In the coal preparation laboratory the coal is handled by standard conveying, crushing, and elevating equipment. Coal cleaning machines installed include a Baum type automatic coal washer, a cone cleaning unit, a heavy liquid coal washer, a simplex jig, two types of concentrating tables, and numerous smaller testing units. In addition, this laboratory is equipped with a continuous flow unit and numerous batch machines for testing ore. This continuous equipment consists of a 6 by 18-inch belt ore feeder, a 12 by 24-inch laboratory ball mill, a 9-inch rotary classifier, a 12 by 18-inch conditioner and agitator, a 6-cell laboratory flotation machine, a laboratory mineral jig, wet and dry reagent filters, a vertical sand pump, and an 18 by 12-inch rotary filter. This laboratory also has a magnetic separator and soon will be equipped with an air table.

An adequate sample preparation room is equipped with the latest devices for mechanically screening and preparing samples for analysis. Fully equipped for its task, the coal analysis laboratory contains separate balance, furnace, and calorimeter rooms.

Problems incident to the measurement and regulation of gas flow are studied by means of a two-stage rotary compressor of 6,000 feet capacity which supplies the air. To facilitate such studies the oil and gas laboratory is equipped with various types of orifices and displacement meters, regulators, and a venturi tube as well as dew point and specific gravity apparatus. Critical flow, low pressure, and a five-foot ball type prover are provided. Equipment also is installed for the study of porosity, grain size, permeability, and saturation of reservoir rocks.

The School of Mines also has a special research laboratory which is equipped with a constant temperature constant humidity room, corrosion testing equipment, dustiness cabinet, and coal treating machinery for dustproofing coal. Provision is made also for combustion tests.

Sharing use of the basement and ground floors as well as the floors just above which are designated "first" and "second" is the Department of Chemical, Metallurgical, and Ceramic Engineering. The Mines administrative offices are located on the first floor, while the Chemical Engineering offices are on the second.

The Department of Chemical Engineering, which offers not only the regular four-year course in its subject but also options in metallurgy and ceramics, has been provided with exceptionally good laboratories for the study of all three subjects and also with three special research labs. Included is a large two-story laboratory at the north end of the building similar in size to that occupied by the School of Mines at the other end of the structure.

Designed for chemical engineering unit operations, this room is 40 by 95 feet in size and has a mezzanine with open grid type removable floor which extends about half its length. A traveling crane is provided for moving heavy loads anywhere in the laboratory.

Well equipped throughout, the laboratories in this department provide for the following unit operations:

Evaporation, used for concentration of brines and other solutions; drying, a very important unit operation in the manufacture of brick, pottery, salts, and textiles; filtration, a unit operation applied in a great many process industries for the separation of suspended solids from liquids or gasses; distillation, important to oil refineries and by-product coking plants; crystallization, which is a vital operation in the production of salt, sugar, sal soda, and many other crystalline compounds for the various markets; absorption and gas scrubbing, for which an acid resistant scrubbing tower is being constructed; unit organic processes; crushing, grinding, screening, and furnacing; ceramics, involving the study of heavy clayware, pottery and glass; electrochemical industries; fuels, which is well-equipped for classwork and research on solid, liquid, and gaseous fuels, and metallurgy and metallography.

Equipment moved from the former quarters of the department in Mechanical Hall has been augmented by the addition of many new pieces of the most modern design.

The Department of Chemical Engineering at West Virginia University has advanced rapidly during the past 15 years to keep pace with the State's ever-expanding chemical and other process industries. These may be divided into (1) manufacture of chemicals; (2) textiles and leather; (3) ceramic products; (4) metallurgical products; (5) by-product coking of coal and refining of petroleum.

Large plants in this field are located in the Kanawha Valley, at Morgantown, at Wheeling, at Huntington, at Parkersburg, at Clarksburg, at Moundsville, at Weirton, and in other localities. Facilities of the new building will enable the department to proceed further in its service of turning out trained engineers and conducting research to aid these industries.

MUSEUM AND LIBRARY ON TOP FLOOR

The two upper floors of the building are occupied by the Department of Geology and the West Virginia Geological Survey, the latter, now one of the foremost surveys of the nation, holding forth on the top floor with its offices, laboratories, libraries, and museum.

Closely allied in their field and with the same executive, these two departments nevertheless have separate quarters. Offices of geology faculty are located on the third floor immediately under those of the Survey.

An outstanding improvement in the Survey's facilities in the new building is the space for its library, which for many years has been highly regarded in geological circles. Coupled with this, the museum, which contains specimens collected over a period of many years, and the map collection, now housed in well furnished map rooms, provide the investigator in this field with a wealth of material easy accessible.

The oil and gas laboratories have specialized equipment for analyzing both petroleum and natural gas by fractional distillation—a process through which is measured the content of such hydrocarbons as butane—raw material for synthetic rubber—ethane, methane, propane, etc., in natural gas and petroleum.

Investigation of the recovery of oil in West Virignia by a secondary method, one of the Survey's important projects, will be accelerated in the new building by equipment in the core testing laboratory. This includes apparatus for examining the porosity of rock samples taken during the course of drilling operations for coal, gas, ore, and oil.

In addition to enabling the Survey's determination of chemical composition, heating value, clinkering characteristics, etc. of coals, equipment in the coal laboratory will make coal hydrogenation experiments possible. From this process comes a reserve of motor fuels and lubricants which may be used as synthetic substitutes for natural products.

With spectrography playing a vital role in recent scientific and industrial development, the spectrograph laboratory, equipped with a large modern spectrograph and complete auxiliaries, is one of outstanding additions provided by the building. By this process it is possible to determine more accurately the extent to which such materials as coal, ash, clay, glass, sand, and various rocks contain compounds and elements in small quantities.

In the well cutting laboratory, cuttings obtained from deep wells drilled in the State and border wells in adjoining states are subjected to microscopic study in order to determine the thickness, character, and mineral composition of rocks encountered in deep tests for oil and gas. This information is invaluable to the producer in enabling him to determine how deep he must drill in order to reach the producing sand.

The paleontology laboratory provides for the examination of rock specimens and fossils in order to help expand knowledge of the State's different rock formations and will thus aid in correlation of information of economic value.

In addition to these various specialized laboratories, there is a general analytical laboratory where routine analysis on a wide variety of materials, including clay, limestone, sandstone, soil water, brine, and ores, are made.

Finally, there are three specialized laboratories known as the research type. Each is designed primarily for the use of a single research worker and has a complete work table on one side and a complete set of service facilities on the other. The arrangement is such as to provide adequate space for special set-ups of equipment designed for different problems.

Similar laboratory facilities and modern classrooms are provided for the Department of Geology. The space is so arranged that students may have convenient access to laboratory materials while working in the classrooms and there are special labs for individual use of graduate students in research.

MINERAL ODDITIES

In the September, 1942, issue of ROCKS AND MINERALS, it was mentioned that Dana's *System of Mineralogy*, 6th edition, and its three appendices, had been carefully examined and localities indexed. The first three countries with the greatest listings of localities were United States (2400), Germany (832), and Italy (608). The 16 leading states of the Union received the following listings (one listing only noted for each mineral):

	System	1st	2nd	3rd	Total
Colorado	129	29	31	21	210
California	108	16	42	35	201
Pennsylvania	141	3	7	30	181
New York	145	8	15	10	178
Massachusetts	109	8	12	15	144
New Jersey	94	18	11	20	143
N. Carolina	104	13	6	—	123
Connecticut	111	3	7	1	122
Arizona	52	2	20	14	88
Maine	70	12	3	2	87
Utah	49	10	6	18	83
Nevada	45	—	7	13	65
New Hamp.	49	1	7	2	59
Virginia	53	1	—	4	58
Arkansas	48	3	3	—	54
Michigan	35	5	10	1	51

The above listings do not include those in the "Catalogue of American Mineral Localities" pages 1054-1104, of the *System*.

North Dakota was the only state not to receive even 1 listing, not even in the Catalogue.

BUY U. S. WAR BONDS AND STAMPS

A GARNET OCCURRENCE IN NORTH CAROLINA

BY RUD POHLI
Hackettstown, N. J.

The Skyline Drive of western Virginia is a most scenic parkway. It is entered from the north at Front Royal and after driving 106 miles one may leave it via U. S. Route 11 which goes to Gatlinburg, Tenn., the western entrance of the Great Smoky Mountains National Park. In this park, where a height of 6,000 feet is reached, the smoke or mist ever present lives up to the name of the park. A visit to the Cherokee Indian Reservation is an interesting event of a trip to the area.

During July, 1941, we, (Mrs. Pohli and I), made the above trip, trying to combine a pleasure trip with mineral collecting. Not until we started back on our way home did I have an opportunity to look for minerals. At Marion, N. C., a talc grinding concern had a nice display of minerals in their show window. We were informed that the specimens came from Spruce Pine, N. C., and so we headed for this locality. After reaching Little Switzerland, a few miles south of Spruce Pine, the steep tortuous roads of western North Carolina were too much for Mrs. Pohli and we had to abandon the trip and return to the lowlands (Spruce Pine is located high up in the mountains).

North again we headed, on reaching the lowlands. At North Wilkesboro, N. C., we took a side road to the left for the Blue Ridge Parkway. Not paying any attention to our speedometer, I believe it was about 15 miles north of the intersection of Route 16 and the parkway, and on the left side of the parkway, that a mountain had been cut away leaving a nice smooth face at an angle of 45° for about 75 to 100 feet up. This smooth mountain side was simply dotted with dark red garnet crystals of the almandite variety. The crystals were so numerous that they literally jumped right into one's vision. The crystals were of good quality and embedded in mica schist; the surrounding rock graded off into all shades of gray color, some parts being almost pure quartz with just small splashes of dark gray mica schist, but sometimes beautifully foliated. The locality is in the southern part of Alleghany county about 18 miles north of North Wilksboro.

The description of the locality seems very indefinite, which it is, but if one were to ride slowly along the parkway (say about 30 miles per hour), the garnets may easily be spotted. The parkway ended at that time 15 miles south of Roanoke, Va., which was reached by a continuing side road. When this parkway is finished into the Spruce Pine section, which during our visit was roughly graded, it will make mineral collecting in western North Carolina much easier.

I did not become interested in minerals until my 50th year was reached and since Mrs. Pohli does not share my enthusiasm, I have to do my collecting on the fly when out touring. In the August, 1941, issue of ROCKS AND MINERALS, Mr. David M. Seaman had an article on his visit to Spruce Pine and I was much interested to learn that he was there just two days ahead of my proposed visit.

COLLECTORS' KINKS

A KINK ON BREAKING SEMI-OPAL

Mark M. Foster, the "Opal King" of Virgin Valley, Nev., sends in this kink. "To break semi-opal into smaller pieces one should never hit the mineral direct with a hammer as the metal leaves ugly marks. Hold a piece of wood against the opal and hit the wood with the hammer."

This suggestion should be followed when breaking up the other varieties of opal, especially those that are light-colored, as well as agate, chalcedony, etc.

GALLIUM FOUND IN VIRGINIA BERYL

BY KENT C. BRANNOCK

Box 313, V. P. I., Blacksburg, Va.

A qualitative spectrographic analysis of a specimen of beryl from Grayson County, Virginia, has shown that gallium and zinc are present as impurities in the beryl. (The analysis was not made to include caesium, but it is hoped that this may be done later). A similiar analysis of rutile from the same locality showed that zinc was present in the rutile.

The beryl occurs in well formed crystals disseminated throughout a pegmatite dike. The crystals are white, stained by iron oxide on the outside, and most of them are about one and one-half inches long. Rutile occurs at the same locality in black, untwinned crystals. Helvite is said to have been found near this locality; however the author has never seen it.

It is appropriate that something be said about the physical properties of gallium. Gallium is a rare metal of the aluminum group, and is one of the few metals which can be a liquid at room temperature. Its melting point is 29.75° C., and it tends to remain liquid when cooled below this temperature. Strangely enough, the boiling point of gallium is approximately 2000° C. These properties make possible the use of gallium in high temperature thermometers. The price of gallium in 1939 was $6.00 per gram.

The author would like to correspond with anyone who has observed the presence of gallium in beryl.

Collectors' Tales

A BUMP IN THE RIGHT DIRECTION

In the coal mining town of Lansford, Penn., there is a railroad tunnel about a mile in length. At regular intervals the roof of this tunnel has to be examined for loose rock, etc. A small railroad truck, drawn by a mule, is used by two miners in this examination.

One early evening I happened to be near the tunnel as the miners were preparing for their examination. The mule, in this particular case, was a young, balky critter. He would take one or two steps and stop—take another step or two and stop again—and so on—being urged to continue between each stop. It so happened that the truck was being drawn up-grade which naturally stopped every time the mule stopped. For no reason at all I kept watching this performance, wondering what would happen if the apex was reached and the car started on a down-grade.

The apex was soon reached and this time, when the mule stopped the truck did not but kept on, gaining momentum with each foot traversed. (There was a distance of about 25 feet between the mule and the track). Suddenly, without any warning to the mule, the truck struck him so sharply a blow in his rear end as to lift him completely up in the air. As he felt himself being lifted, the mule turned his ahead around quickly to see what had happened—with a look on his face that was so comical it was too much for me. I fell on the ground and roared with laughter and so did the miners.

P. ZODAC.

BUY MORE MINERALS but buy good minerals. Our advertisers carry nothing but the best in stock.

NEW DISCOVERY OF COVELLITE AT BUTTE, MONT.

BY M. H. GIDEL

Butte, Mont.

During the last week of May and the first of June, 1942, development on one of the deeper levels (3200 foot level) of the Leonard Mine at Butte discovered an occurrence of covellite and chalcocite. This new find was very spotty and yielded only a few good specimens—but a number which were found were very colorful.

Most of the specimens of Butte covellite in mineral collections throughout the world were obtained from one or two veins worked on upper levels thirty or more years ago.

Covellite specimens should be brushed dry since water tarnishes its true indigo blue color to iridescent reddish shades.

1943 JUBILEE CATALOG

Warner & Grieger, those hustling, enterprising mineral dealers of 405 Ninita Parkway, Pasadena, Calif., have done it again. They have issued another and even larger catalog. This new 1943 Jubilee Catalog of 100 pages (with 91 very fine illustrations) is one of the most attractive price lists we have yet seen.

Every page of this 6 x 9 Jubilee Catalog is intensely interesting while many items offered are simply fascinating. Minerals, gems, crystals, fossils, books, magazines, fluorescent specimens, ultra violet lamps, lapidary equipment and supplies, sets, grab bags, display cases, hammers are not only all listed but often so attractively illustrated that one unconsciously grabs a pad and pencil to jot down an order.

Though the Jubilee Catalog sports a pleasing green cover, it does not signify that the proprietors are Irish. Like a traffic light, it is a good-ahead signal—Look through the catalog and send in an order, you have the right of way!!!

This very attractive and most interesting catalog should be in the hands of everyone interested in minerals—whether as a collector, gem cutter, or miner. We do not know how many copies have been issued but we do know that they will not last long. Therefore, rush your order for it, and especially if you are in need of minerals or mineralogical supplies. Even though Warner & Grieger have an immense stock on hand, it will shrink rapidly once orders start coming into their offces.

The price of the catalg?—just 15c per copy!!

MUSEUM MODEL OF THE SOLAR SYSTEM

An elaborate model representing the solar system, and showing the relative positions of the planets, has been placed on exhibition at Field Museum of Natural History, Chicago, Ill., in the department of geology. In this exhibit the planets are represented by models carved from a transparent plastic, and these are made attractive by illumination from behind a panel which represents outer space. The model was prepared by Frank H. Letl. Dr. Sharat K. Roy, curator of geology, designed and supervised preparation of the exhibit and prepared the explanatory labels.

On the other side of the same case is an exhibit illustrating the composition of the interior of the earth. This was also designed by Curator Roy, and the carving of the model was done by Joseph Krstolich.

This exhibit and the accompanying explanatory label make clear what science has been able to ascertain up to this time about the density and stratification of the earth to the known limits.

A LIMESTONE QUARRY IN QUARRYVILLE, PENN.

BY PETER ZODAC

Editor Rocks and Minerals

In the southern part of Lancaster County, which is in the southeastern part of Pennsylvania, is the little village of Quarryville. It is a pleasant village of about 1,000 inhabitants and it received its name from the quarry which is still in active operation.

The quarry is located in the northwestern section of the village and 3000 feet north of the Pennsylvania Railroad (Atglen and Susquehanna Branch). It is operated by A. H. Burkholder under the name of Quarryville Lime and Stone Co., and the product used for road material. The quarry, formerly known as the Orchard Quarry, was opened up 121 years ago and the stone crushed for agricultural purposes.

At the time of the writer's visit, Tuesday, October 6, 1936, the quarry, in grayish-blue, massive limestone, was 600 feet long, 400 feet wide at the face, and 60 feet deep. Although Mr. Burkholder stated that the quarry was not known for minerals, he very graciously allowed the writer the privilege to examine the workings and the following specimens were found:

Calcite: Is the chief constituent of the grayish-blue limestone; also of a dark gray crystalline limestone. It was further noted in large colorless crystals with dolomite; in white cleavable masses in limestone; and as tiny, colorless drusy crystals.

Dolomite: Occurs in brownish curved crystals of good quality with calcite crystals on limestone; also in cleavable brownish masses of good quality in limestone.

Phlogopite: Common as bronzy flakes in limestone.

Pyrite: Noted as tiny cubes, often altered to limonite, and both of poor quality, in limestone; also as tiny lustrous cubes in schist.

Pyrrhotite: Common in small metallic lustrous masses, drak brown in color, in limestone.

Quartz (Milky): Massive and of good quality as veins in schist.

Rutile: Found as slender dark-brown crystals in mica schist near its contact with the limestone.

The grateful thanks of the writer is extended to Mr. Burkholder for his kindness in allowing him to collect specimens at the quarry, for information on the workings, and for many other courtesies.

FIELD MUSEUM HAS 23 MEN IN WAR SERVICE

Dr. Sharat K. Roy, curator of geology at Field Museum of Natural History, Chicago, Ill., has been commissioned a captain in the U. S. Army. Dr. Roy is a veteran of the first world war in which he served as a private with the British Indian Army. He graduated from the University of Illinois, and received his Ph.D degree at the University of Chicago. He joined the staff of the museum in 1925, and in 1927-28 spent fifteen months in Newfoundland, Labrador, and Baffin Land as geologist of the Rawson MacMillan Subarctic Expedition of Field Museum.

Another member of the museum's scientific staff, Rupert L. Wenzel, assistant curator of insects, has also left to accept an appointment as first lieutenant in the Sanitary Corps of the army. He likewise did his graduate work at the University of Chicago. To date, twenty-three men — scientists, trustees, administrative and maintenance personnel—have left the museum for war service.

BUY U. S. WAR
BONDS AND STAMPS

Clubs Affiliated With the Rocks and Minerals Association

ARIZONA

Mineralogical Society of Arizona
Geo. G. McKhann, Sec.. 909 E. Willetta Street, Phoenix.
Meets at the Arizona Museum in Phoenix on the 1st and 3rd Thursday of each month.

CALIFORNIA

East Bay Mineral Society
Miss Nathalie Forsythe, Sec., 1719 Allston Way, Berkeley.
Meets on the 1st and 3rd Thursdays of each month (except July and August), at 8:00 p.m., in the Lincoln School Auditorium, 11th and Jackson Sts., Oakland.

Northern California Mineral Society, Inc.
L. M. Demrick, Sec., 424 Ellis St., San Francisco.
Meets on the 3rd Wednesday of the month at the Public Library in San Francisco.

Pacific Mineral Society
Mrs. Maude Oke, Sec., 9115 S. Harvard Blvd., Los Angeles.
Meets on the 2nd Friday of each month at 6:30 p.m., at the Hershey Arms Hotel, 2600 Wilshire Blvd., Los Angeles.

Southwest Mineralogists
Dorothy C. Craig, Corres. Sec., 4139 S. Van Ness Ave., Los Angeles.
Meets every Friday at 8:00 p.m., Harvard Playground, 6120 Denker Ave., Los Angeles.

COLORADO

Canon City Geology Club
F. C. Kessler, Sec., 1020 Macon Ave., Canon City.
Meets on the 1st and 2nd Saturdays of each month at 9:00 a.m. in the High School Building, Canon City.

Colorado Springs Mineralogical Society
Mrs. Helen S. Caldwell, Secretary, 221 N. 14th, Colorado Springs.
Meets usually at the Lennox House, Colorado College Campus, Colorado Springs, on the 2nd Monday, of each month at 7:30 p.m.

CONNECTICUT

Bridgeport Mineral Club
Miss Georgianna Seward, Sec., 2859 Main St., Bridgeport.
Meets in the Bridgeport Public Library on the 3rd Monday of the month.

Mineralogical Club of Hartford
Frank P. Rockwell, Secretary, 88 Fern St., Hartford
Meets the 2nd Wednesday of each month, at 8:00 p.m., at 249 High St., Hartford.

New Haven Mineral Club
Mrs. Lillian M. Otersen, Sec., 16 Grove Place, West Haven.
Meets on the 2nd Monday of the month at the Y. W. C. A. on Howe St., New Haven.

IDAHO—OREGON

Snake River Gem Club
Mrs. A. Ingraham, Sec., Box 714, Ontario, Ore.
Meets alternately in Payette, Idaho, and Ontario, Oregon, (two small cities on the Snake River) on the 3rd Tuesday of every month.

ILLINOIS

Junior Mineral League
William Dacus, Sec., Morgan Park Junior College, 2153 W. 111th St., Chicago.

MAINE

Maine Mineralogical and Geological Society
Miss Jessie L. Beach, Sec., 6 Allen Avenue, Portland.
Meets last Friday of the month at 8 p.m., at the Northeastern Business College, 97 Danforth Street, Portland.

MARYLAND

Natural History Society of Maryland
2103 N. Bolton Street, Baltimore.
Office hours, Tuesdays and Fridays, 10:00 a.m. to 5:00 p.m.

MASSACHUSETTS

Boston Mineral Club
Mrs. Grace G. Dearborn, Sec., 40 Mt. Vernon St., Cambridge.
Meets on the 1st Tuesday of the month at 8:00 p.m., at the New England Museum of Natural History, 234 Berkeley St., Boston.

Connecticut Valley Mineral Club
Mary E. Flahive, Secretary, 96 South St., Florence
Meets on the 1st Tuesday of each month at 8 p. m. at various institutions in the Connecticut Valley.

MISSOURI

National Geologist Club
Mrs. D. P. Stockwell, Pres., Mt. Olympus, Kimmswick.

NEVADA

Reno Rocks and Minerals Study Club
Mrs. Rader L. Thompson, Sec., Box 349, R2, Reno.
Meets on the 1st Wednesday of each month, at 7:30 p.m., at the Mackay School of Mines, Reno.

Western Nevada Mineral Society
Miss Helen Griffing, Sec., 231 Mary St., Reno.
Meets on the 2nd Wednesday of each month at 7:30 p.m., at the State Bldg., Reno.

NEVADA

Mineralogical Society of Southern Nevada
Paul Mercer, Acting Secretary, Bureau of Mines, Boulder City.
Meets on the 2nd Monday of each month at Las Vegas High School and on the 4th Monday of each month at Boulder City High School—both meetings at 8:00 p.m.

NEW JERSEY

Newark Mineralogical Society
Louis Reamer, Secretary, 336 Elizabeth St., Orange.
Meets on the 1st Sunday of the month at 3 p.m. at Junior Hall, corner Orange and North 6th Streets, Newark.

New Jersey Mineralogical Society
O. B. J. Fraser, Sec.-Treas., 27 Stoneleigh Park, Westfield.
Meets on the 1st Tuesday of the month at 8 p.m. at the Plainfield Public Library.

NEW MEXICO

New Mexico Mineral Society
R. M. Burnet, Sec.-Treas., Carlsbad.

Society of Archaeology, History and Art
Carlsbad.

NEW YORK

Chislers, The
Miss Evelyn Waite, Sponsor, 242 Scarsdale Road, Crestwood, Tuckahoe.

Queens Mineral Society
Mrs. Edward J. Marcin, Sec., 46-30—190th Street, Flushing.
Meets on the 1st Thursday of the month at 8 p.m. at 8501 - 118th St., Richmond Hill.

OKLAHOMA

Oklahoma Society of Earth Sciences
W. P. Smiley, Sec.Treas., 229 W. Jefferson Street, Mangum.
Meets on the 2nd Tuesday of each month, at 7:30 p.m., at the Historical Museum, Mangum.

PENNSYLVANIA

Thomas Rock and Mineral Club
Mrs. W. Hersey Thomas, Pres., 145 East Gorgas Lane, Mt. Airy, Philadelphia.
Meets on the 3rd Friday of each month, at 8:00 p.m., at the home of its president, Mrs. Thomas.

VERMONT

Mineralogical Society of Springfield
Victor T. Johnson, Sec., 11 Elm Terrace, Springfield.
Meets on the 3rd Wednesday of each month at 8:00 p.m. at the homes of members.

WASHINGTON

Gem Collectors Club
Mrs. Lloyd L. Roberson, Sec., 522 North 70th Street, Seattle.
Meets on the 1st and 3rd Tuesday of each month (except during the summer) at 8:00 p.m., at the Y. M. C. A.

Washington Agate and Mineral Society
Monroe Burnett, Sec., 802 S. Central St., Olympia.
Meets on the 1st Monday of the month, at 7:30 p.m. at the home of some member.

WISCONSIN

Wisconsin Geological Society
Frank H. Nelson, Sec., 740 N. Plankinton Ave., Milwaukee.
Meets on the 1st Monday of each month at 8:00 p.m., at the Public Museum in Milwaukee.

With Our Dealers

John M. Grenzig of Brooklyn, N. Y., announces that the publishers of Young's "The Art of Gem Cutting" have reduced the price of the book from $2 to $1.50. See his ad on page 364.

Frank Morse, proprietor of the Colorado Gem Co., Bayfield, Colo., has reopened his establishment after over a year's absence. He has a new building, located 2 miles west of Bayfield, on U. S. 160. His ad appears on page 363.

J. Gisler & Son of San Francisco, Calif., are offering some brilliant black garnets in this issue. Have you any of these in your collection? Look their ad up and order one or two specimens.

H. Wiener of Tucson, Ariz., features six attractive Arizona minerals at an attractive price. Check these minerals in your collection and if missing—order the set today.

Club and Society Notes

Rocky Mountains Federation Convention

The second annual meeting of the Rocky Mountain Federation of Mineral Societies, held in Salt Lake City, Utah, August 29th-30th, was attended by nearly one hundred Federation members.

The session opened with an informal meeting Friday evening at which motion pictures and natural color views of Utah collecting fields were shown.

Following registration Saturday morning, Prof. R. E. Marsell of the University of Utah gave an illustrated lecture on "The Geology of Our Back Yard." After an intermission of an hour which was spent in the exhibit room, Alfred Buranek, Geologist for Utah State Department of Publicity and Development, gave a lecture on "Utah's Famous Mineral Localities."

At the business meeting which concluded the morning program, the following officers were elected: A. L. Flagg, Phoenix, Arizona, President; Dr. Olivia McHugh, Salt Lake City, Utah, Vice President; M. Barrie Berryman, Salt Lake City, Utah, Secretary-Treasurer.

Luncheon at the historic Lion House was followed by a trip to the Utah Copper Co.'s open pit mine at Bingham.

The annual dinner, held in the Art Barn, was attended by eighty-five members, delegates and guests.

A lecture and demonstration on the subject of Fluorescence by Dr. H. T. Plumb, Special Lecturer for the General Electric Company, concluded the Saturday program.

Sunday was devoted to a field trip to Pelican Point on the west side of Utah Lake and about forty participated. Here limonite pseudomorph after pyrite crystals were collected. Specimens of calcite and aragonite were also obtained from nearby quarries.

Philadelphia Society to Observe Its 50th Anniversary

On October 1st, 1942, (Thursday) at 8:00 p.m., the Philadelphia Mineralogical Society will hold its 50th Anniversary at the Academy of Natural Sciences, 19th and the Parkway, Philadelphia, Pa. The meeting will be preceded by a dinner at Holland's Restaurant, 114 N. 19th, at 6:00 p.m.

The program for the meeting will be as follows:

Address of Welcome—Charles M. B. Cadwalader, President of Academy of Natural Sciences.

Anniversary Address — "Mineralogists; Where Now?"
John Frank Schairer, Ph.D.
Physical Chemist, Geophysical Laboratory, Carnegie Institution of Washington.

Remarks by the President of the Philadelphia Mineralogical Society, W. Hersey Thomas, M.D.

Echoes of the Past.
Harbingers of the Future.

The officers of the Society for 1941-42 are:
President—W. Hersey Thomas, M.D.
Vice President—Charles R. Toothaker
Treasurer—Harry W. Trudell
Secretary—Forrest L. Lenker
Councillor—Harold W. Arndt

Rocks and Minerals Free Samples Fund

Founded to cover cost of free copies of the magazine to be distributed during the New Jersey Mineral Show to be held later in the year.

Contributions Received From

Rocks and Minerals	$10
John Albanese, Newark, N. J.	$10
Miss Violet Miller, Brooklyn, N. Y.	$ 2
Miss Evelyn Waite, Crestwood, N. Y.	$ 1
Mark M. Foster, Denio, Ore.	$ 2
Anonymous, Hartford, Conn.	$ 2
Total	$27

Bibliographical Notes

Analyses of West Virginia Coals:
One of the important functions of the U. S. Bureau of Mines is the analysis of coal from every coal-mining state and from Alaska. Tech. Paper 269 on Iowa coal was the first of the series to be issued; this paper on West Virginia coal is the 21st.
Bureau of Mines Tech. Paper 626.
341 pp. 10 figs. 45c

Bibliography of Bureau of Mines Investigation of Coal and its Products, 1935 to 1940: By A. C. Fieldner.
Bureau of Mines Tech. Paper 639
43 pp. 10c

Magnetic Separation of Ores: By R. S. Dean and C. W. Davis
This report discusses briefly operations and trends in magnetic separation, explains magnetic separation, describes and classifies the machines used, and outlines their development as disclosed by patents and examples of practice on a wide variety of ores; it should prove useful to ore-dressing engineers and others interested in this subject.
Bureau of Mines Bull. 425 417 pp.
165 figs. $1.00

Typical Analyses of Coals of the United States: By A. C. Fieldner, W. E. Rice, and H. E. Moran.
This paper covers analyses of coals from 30 states and Alaska.
Bureau of Mines Bull. 446 45 pp.
10c

Quarry Accidents in the United States: 1940. By W. W. Adams and V. E. Wrenn.
Bureau of Mines Bull. 447 87 pp.
15c

Coal Mine Accidents in the United States: 1940. By W. W. Adams, L. E. Geyer, and M. G. Parry.
Bureau of Mines Bull. 448 134 pp.
20c

The above publications may be obtained at prices quoted from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Field Tests for the Common Metals (8th edition, revised): By George R. Fansett.
For those interested in blowpiping, here is a booklet that should be of great value to them. It has been prepared especially for the beginner in being written in as simple and nontechnical language as the subject permits, yet the directions given are full enough so that anyone should be able to understand how to do the work. It is an excellent publication and we recommend it to all our readers.
Issued by the Arizona Bureau of Mines, Tucson, Ariz., as Tech. Series No. 40, Bull. No. 150, (56 pages). Price 20c (free to residents of Arizona).

Olga-Mattagami Area (Abitibi Area): By P. Auger.
The purposes of the investigation of this area in southwestern Quebec were to map in detail the outcropping formations, to study the occurrence and type of overburden, to study the mining possibilities, and to complete the base-map where necessary.
Issued by the Department of Mines, Quebec, Que., Canada, as Geological Report 10 (19 pp. 2 pls. 1 map).

A Comet Strikes the Earth: By H. H. Nininger.
We have seen many books on rocks, minerals, gems, fossils, and meteorites but the above publication is the only one known to us which carries between its covers an actual specimen—in this case a genuine meteorite.
The booklet, 6 x 4¼ inches in size, 34 pp., 8 illus., describes the great Meteor Crater near Canyon Diablo in Northern Arizona. It also tells how to recognize meteorites, and describes how they land on the earth.
The intriguing feature of the booklet is the small meteorite that is mounted in the lower left hand corner on the inside of the back cover. A round hole, 1 inch in diameter, has been cut through the front cover and all the pages of the booklet, thus exposing the meteorite to view.
This booklet by Dr. Nininger, one of America's noted meteorite experts, costs but 35c per copy. It is for sale by the American Meteorite Laboratory, 635 Fillmore St., Denver, Colo.

CLASSIFIED ADVERTISEMENTS

WORLD'S BEST WANT AD. MEDIUM FOR MINERALS

Rate 5c per word; minimum 10 words. Remittance must accompany copy in all cases. Advertisers must furnish satisfactory references before their advertisements will be inserted. Forms close the 1st of every month.

BOOKS

Handbook For the Amateur Lapidary by J. H. Howard, 16 chapters covering all phases of gem cutting and polishing, 141 pp., 14 illus., price $2.00. J. H. Howard, 504 Crescent Ave., Dept. R., Greenville, S. C.

History and Geology of the Royal Gorge, an illustrated souvenir booklet with maps and drawings locating 54 minerals for touring collectors. 50c postpaid. F. C. Kessler, Canon City, Colo.

Gems and Gem Materials—Fourth edition ready. Complete and Authoritative. New Price $3.00. Write for 1943 price list of American gem rough. Sample sack 10c. Gem Exchange, Lake Bluff, Illinois.

Fluorescence of Minerals by Chester Slawson. Excellent color plate of the Cranbrook display, plus text. 35c postpaid. Cranbrook Institute of Science, Bloomfield Hills, Michigan.

FOSSILS

Fossils, Minerals, Old Arms, Indian Beaded Trappings, prehistoric specimens, general line of curios. Lists 10 cents. N. E. Carter, Elkhorn, Wisc.

EXCHANGES

Autunite, Boltonite, Cryophyllite, Danalite, Enstatite, Ferrisicklerite, Graftonite, Heterosite, Triphylite and other Eastern species. Gunnar Bjareby, 147 Worthington St., Boston, Mass.

MINERALS

Beautiful Opals-Direct from Australia. Lapidaries Parcel 10 ounces cutting opal (about 50 stones) $10.00. Collectors specimens—good attractive parcels, $5.00, $10.00. Dozen small black opals $5.00. 10 ounces small opal chips $5.00. Illustrated catalogue No. 47 free. Natural History Books (thousands), lists free. Norman Seward, "Opal House," Melbourne, Australia.

Large Dark Purple Amethyst Crystals containing gold; bright sparkling clusters of pyrite crystals; Mt. Mica, Maine, tourmalines. 75c—$2.00, postpaid. Rich gold specimens $2.00 up. Monroe Mineral Store, Monroe, N. Y.

Minerals, Fossils, Indian Relics, Books, Coins, Curios Stamps, Old Glass. Catalogue 5c. Indian Museum, Osborne, Kansas.

Millerite, Jelinite, Oolitic Limonite, Grunerite. Benedict P. Bagrowski, 1722 S. 22nd St., Milwaukee, Wis.

MINERALS

Scott Rose Quartz Co.—Rose Quartz Black Hills specimens, all kinds and colors; for rock gardens, cabinets, etc. Boxes: 24 specimens, $1.00; 18 specimens, 50c; 15 specimens, 35c. Postage paid. Box 516, Custer, S. Dak. Send stamp for price list.

Top Quality Breccia Jasper—Strong, clean, excelling all other Jaspers for beauty. Suitable sizes for all purposes. 40c per lb. Slabs 8c per inch. Wholesale to dealers. Leo Ferris, San Miguel, Calif.

Uraninite and select North Carolina specimens. Paul Silver, Genl. Supt., Feldspar Producing Co., Spruce Pine, N. C.

New England Minerals for sale or exchange. Correspondence solicited. Rudolf C. B. Bartsch, 36 Harrison St., Brookline, Mass.

25—2½ Inch Ozark Specimens, blue, brown, purple and rose-taupe agates and jaspers, quartz crystal clusters, red and cream ringed onyx, snow calcite, vari-colored banded flints and breccias, petrified wood and other colorful minerals, $2.00 postpaid. John Jennings, Eureka Springs, Arkansas.

Cutting Agates, Woods, Minerals—Bishop's Agate Shop, North Bonneville, Wash.

FLUORESCENT MINERALS

Fluorescent Calcite mixed with sphalerite and galena. I have been mining specimens for ten years and this is the only calcite I have found which will fluoresce under the black bulb or quartz light and only a small quantity available. For sale or trade for good willemite or wernerite. J. A. Robertson Box 105, Baxter Springs, Kansas.

Fluorescent Mexican Fluorspar—Prices on request. A. J. Wallace, 118 Lawnside Avenue Collingswood N. J.

Minerals for Blowpipe Analysis

100 different species—in small clean fragments—generous portions—**$5.00.**

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